

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Appln. No. 09/519,847

REMARKS

Claims 1-4 are all the claims pending in the application. Claim 4 is withdrawn from consideration as being drawn to a non-elected invention.

Claim 1 is objected to for a typographical error. Applicants note that the term “possible” is a typographical error and should read “possibly”. This error is corrected herein.

Claims 1-3 are rejected under 35 U.S.C. § 112, second paragraph, for inconsistently referring to “at least one pass” and “one pass” and thus causing an antecedent problem.

Applicant amends claims 1 and 2 to remove any ambiguities.

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikura JP 4-160028 in view of Le Sergent 5194714 and optionally in view of Yokota 4846867 and Fleming 4872895.

Analysis

To review briefly, claim 1 is directed to a method for making an optical fiber preform. The method includes the step of injecting, via an injector means, at least one substance, in the form of silica or a precursor of silica, in a heated area created by heating means. This heated area is created during at least one pass of the heating means and injector means.

During the pass along the longitudinal axis of the preform, the relative positions of the injector means and the heating means are adjusted with respect to each other. The silica is deposited in the heated area regardless of the position of the heating means.

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Thus, in the present invention, the injecting means deposits silica in the heated area created by the heating means. The claims clearly recite that the injecting means and the heating means are associated with each other, i.e., the injecting means injects in the heated area that was created by the heating means.

Turning to the Examiner's "Response to Arguments" (page 4-5 of Office Action), the Examiner states that the "area ABCD itself is an arbitrary area. One of ordinary skill in the art would be at a complete loss as to what this area is. Examiner assumes that this area is defined by some temperature. However, there is no indication as to what that temperature is. Since the claims do not limit the area to what the temperature is, examiner has no choice but to give a very broad interpretation to what the area is."

Applicants respectfully submit that the "heated area" is self-explanatory and no "assumptions" are necessary. When read in light of the specification, one of ordinary skill in the art would understand the meaning of this terminology as intended by Applicants. That is, the heated area is the area heated by the heating means and is clearly discussed in the specification and figures as the **area ABCD** that is created by the heating means. The area is illustrated in Figs. 4-5. The area is discussed on pages 8-9 of Specification. Thus, the heated area refers to that area ABCD heated by the heating means, i.e., the plasma torch, and it would not be consistent with the specification to interpret this area as including any other area. It is clear from a reading of the specification and claims that Applicants are referring to the particular area ABCD that is heated by the torch rather than any other peripheral areas or areas which may be warmer than room temperature since the present invention is specifically directed to improving

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the relative positions of the torch and injecting means with respect to this heated area ABCD. A thorough review of the claims in light of the specification would lead one of ordinary skill in the art to understand this aspect of the invention.

Turning back to claim 1, the injector means injects silica in the heated area created by the heating means. Thus, the injector means and heating means are associated with each other, while also moving with respect to each other. JP '028 fails to teach or suggest this feature. Instead, JP '028 discloses multiple sets of heating/injecting means, but each heating means is not adjusted with respect to its associated injecting means; each pair of heating/injecting means are bundled together. Thus, the benefits of the present invention are completely lost with this reference. (See specification and paper no. 17 for a detailed explanation of the benefits of the present invention.)

In the Office Action, the Examiner argues that Applicants have made “only an allegation that the means 9 and 17 are not associated with each other.” The Examiner argues that “there is no rationale or evidence to support this.” However, Applicants explained the meaning of “associated” in the claims and why the means 9 and 17 are not “associated” with each other in the previous Response. This explanation is reviewed as follows.

The Examiner relies on element 9 as the heating means, and element 17 as the injecting means (see final Office action, page 4, first paragraph). However, these two elements are not associated with each other as in the present invention. That is, the “injecting means 17” does not inject silica in the heated area created by the “heating means 9”. (The explanation for the heated area in the claimed invention is discussed above.) Instead, in JP '028, the “injecting means 17”

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injects soot in the area heated by the heating means on the base 15, while the “heating means 9” heats an area to be injected by the elements associated on the base 7.

In view of the foregoing, JP ‘028 fails to teach or suggest that a heating means and its associated injector means, wherein said injector means injects silica in the heated area created by the heating means, are adjusted with respect to each other. Rather, JP ‘028 suffers from the same deficiencies outlined in the background portion of the pending specification, i.e., the heated area is not maximized because the injecting means and heating means are **fixed** with respect to each other and can not be adjusted to maximize efficiency of the heated area.

The other cited references fail to make up for this deficiency of JP ‘028. Le Sergent fails to teach or suggest that the heating means and injector means associated with each other are movable with respect to each other. Yokota fails to teach or suggest movable heating or injector means. Still further, Fleming also fails to teach or suggest that the heating means and injector means that are associated with each other are movable with respect to each other.

Thus, even if one were to combine the references, one would not have been motivated to provide heating means and injecting means that are adjusted with respect to each other along the longitudinal axis of the preform, so that the silica is deposited in the heated area created by that heating means.

Also, with respect to the statements made by the Examiner on page 4, first paragraph, it is noted that the term “vicinity” was removed from the claims in the previous Response. It appears that the arguments set forth in the current Office Action are verbatim from the previous Office Action even though the claim limitations had been amended. The removal of the term “vicinity”

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was intended to further clarify the meaning of the heated area which is injected by the injecting means, and thus, Applicants respectfully request the Examiner to revisit this issue in light of the previous Amendment.

In summary, none of the cited references, whether taken alone or in combination, teach or suggest that the heating means and injecting means can be adjusted with respect to each other. Instead, all of the cited prior art discloses heating and injecting means that are fixed in position with respect to each other. Even if JP '028 shows two pairs of heating and injecting means, the heating and injecting means for each pair that work together, i.e., that are associated, are not adjustable with respect to each other.

In view of the foregoing, claim 1 is patentable.

The remaining rejections are directed to the dependent claims. These claims are patentable for at least the same reasons as claim 1 above, by virtue of their dependency therefrom.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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